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☐	L3	L2 and (hydrocarbon near2 synthesis or produc$4 near2 hydrocarbon or Fischer tropsch)	92
☐	L2	catalyst with reynolds	240
☐	L1	catalyst particle$1 with reynolds	10

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=> s catalyst particle? (s) reynolds
        726863 CATALYST
        729784 CATALYSTS
        932763 CATALYST
                 (CATALYST OR CATALYSTS)
       1176456 PARTICLE?
          6246 CATALYST PARTICLE?
                 (CATALYST(W)PARTICLE?)
         31688 REYNOLDS
L1          11 CATALYST PARTICLE? (S) REYNOLDS

=> d l1 ibib ab 1-11
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L1 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER:	2005:1028103 CAPLUS
DOCUMENT NUMBER:	143:269384
TITLE:	Optimized catalyst particle distribution for slurry bubble column reactors used in Fischer-Tropsch process
INVENTOR(S):	Espinoza, Rafael L.; Odueyungbo, Oluwaseyi A.; Zhang, Jianping; Mohedas, Sergio R.
PATENT ASSIGNEE(S):	Conocophillips Company, USA
SOURCE:	U.S. Pat. Appl. Publ., 17 pp. CODEN: USXXCO
DOCUMENT TYPE:	Patent
LANGUAGE:	English
FAMILY ACC. NUM. COUNT:	1
PATENT INFORMATION:	

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005209350	A1	20050922	US 2004-803319	20040318
WO 2005092824	A1	20051006	WO 2005-US5863	20050223

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,

AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2004-803319 A 20040318

AB A method for selecting maximum and min. catalyst particle sizes for use in a multiphase reactor that reflects optimum operating conditions of the reactor is based on a maximum Archimedes number for estimating the maximum particle size and a property of a separation system linked to the reactor to determine the min. particle size. The maximum Archimedes number could be selected based on a maximum catalyst nonuniformity in the reactor. Addnl., a method for producing hydrocarbons from syngas by Fischer-Tropsch reaction in a slurry bubble column reactor includes the use of fresh catalyst particles with an optimum size distribution based on a range of Archimedes nos. between .apprx.0.02 and 250 or alternatively based on an average Reynolds number .ltorsim.0.1.

L1 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1981:3420 CAPLUS
DOCUMENT NUMBER: 94:3420
TITLE: Kinetics of dehydration of ethylene glycol in the gas phase
AUTHOR(S): Lopez, Jose Costa; March, Salvador Cervera; Garcia, Fidel Cunill
CORPORATE SOURCE: Fac. Quim., Univ. Barcelona, Barcelona, Spain
SOURCE: Afinidad (1980), 37(368), 301-5
CODEN: AFINAE; ISSN: 0001-9704
DOCUMENT TYPE: Journal
LANGUAGE: Spanish

AB The dehydration of diethylene glycol (I) in the gas phase over an aluminosilicate catalyst at 310-90° [to give mainly 1,4-dioxane (II), H2O, MeCHO, HOCH2CH2OH (III), and HOCH2CH2 OCH2CH2OCH2CH2OH (IV) as well as smaller amts. of oxirane, MeOH, EtOH, and 2-methyl-1,3-dioxolane] was examined in a fixed bed tubular reactor. Under the working conditions (Reynolds number >1, catalyst particle diameter <1.6 mm) the reaction velocities of this system are not affected by the external mass transference or by diffusion inside the catalyst. The kinetics of the conversion of I to II and water and of I to MeCHO and III indicate that the controlling step is the surface velocity, with a one-center mechanism; I is strongly adsorbed on the surface of the catalyst.

L1 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1976:65678 CAPLUS
DOCUMENT NUMBER: 84:65678
TITLE: Mass transfer effects for uniform and nonuniform catalyst pellets
AUTHOR(S): Patel, Kishor; Smith, J. M.
CORPORATE SOURCE: Univ. California, Davis, CA, USA
SOURCE: Journal of Catalysis (1975), 40(3), 383-90
CODEN: JCTLA5; ISSN: 0021-9517
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Reaction rates for the catalytic oxidation of H in a spherical, single-pellet, recycle reactor system showed negligible external mass transfer resistances at Reynolds nos. as low as 0.27. Only at lower flow rates, where complete mixing of gas in the reactor space was doubtful, did fluid-to-pellet mass transfer affect the rate in this particular reactor arrangement. Pellets prepared with a nonuniform distribution of active catalyst particles, and an accompanying 2/3 reduction in mass transfer surface, also exhibited no external diffusion resistance in

the temperature range 94-180°, unless the Reynolds number was <0.27. However, at lower Reynolds nos. the retardation of the rate by mass transfer was greater for the nonuniform pellets.

L1 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1973:18260 CAPLUS
DOCUMENT NUMBER: 78:18260
TITLE: Axial dispersion in beds of small particles
AUTHOR(S): Suzuki, Motoyuki; Smith, J. M.
CORPORATE SOURCE: Univ. California, Davis, CA, USA
SOURCE: Chemical Engineering Journal (Amsterdam, Netherlands) (1972), 3(3), 256-64
CODEN: CMEJAJ; ISSN: 1385-8947
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Chromatog. was used to evaluate axial dispersion coeffs. EA in beds of porous catalyst particles and nonporous glass beads (0.1-1 mm) at modified Reynolds nos. 0.00237-11.9. He in H and O in N were used to give different mol. diffusivities. At low velocities, EA was proportional to the mol. diffusivity and the diffusibility η; the latter can be approx. predicted by the Burger equation in terms of void fraction and particle shape. The high values of EA for porous particles can be explained by inclusion of intraparticle diffusion, this being .apprx.10% of the gas-phase contribution. At high velocities, this contribution was negligible. At high velocities, Peclet nos. approached constant values which were proportional to the particle diameter

L1 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1972:5241 CAPLUS
DOCUMENT NUMBER: 76:5241
TITLE: Dispersion and diffusion in beds of porous particles
AUTHOR(S): Gunn, D. J.; England, R.
CORPORATE SOURCE: Univ. Coll., Swansea, UK
SOURCE: Chemical Engineering Science (1971), 26(9), 1413-23
CODEN: CESCAC; ISSN: 0009-2509
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The frequency response of a number of beds packed with porous catalyst spheres was measured. The expts. were carried out within the range of Reynolds number 1-200. By anal. of the responses, coeffs. of intraparticle diffusivity and the coeffs. of axial dispersion were obtained with good accuracy. The accuracy of the diffusivity coeffs. appeared to be .apprx.10%. The dependence of the axial dispersion coefficient upon Reynolds number agreed with the form of a recently published theory, and a significant difference in the packing characteristics of different grades of catalyst particles was found. A statistical anal. showed that the exptl. frequency response of the bed agreed with the differential equation and the solns. used in the theoretical anal. Radial dispersion characteristics were measured by injection of a tracer into fluid flowing through the packed bed. The measurements were in good agreement with a recent theory.

L1 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1971:77790 CAPLUS
DOCUMENT NUMBER: 74:77790
TITLE: Longitudinal mixing of a liquid in a rising gas-liquid flow in reactors with a fixed catalytic bed
AUTHOR(S): Bezdenezhnykh, A. A.; Taranov, V. I.; Orlov, A. P.
CORPORATE SOURCE: Gos. Inst. Prikl. Khim., Leningrad, USSR
SOURCE: Teoreticheskie Osnovy Khimicheskoi Tekhnologii (1971), 5(1), 163-7
CODEN: TOKTA8; ISSN: 0040-3571
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Axial mixing of a liquid moving along the catalyst bed in a reactor cocurrently with a gaseous stream was studied by a tracer impulse technique. The exptl. data were successfully expressed by the equation Pe = 0.11 ReL0.45ReG0.47 (dr/dp)-0.31, where Pe = liquid Peclet number, ReL, ReG = Reynolds nos. for the liquid and gaseous phases, resp., d1, dp = reactor and catalyst particle diameter, resp.

L1 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1970:489796 CAPLUS
DOCUMENT NUMBER: 73:89796
TITLE: Catalytic isomerization of aromatic C8 hydrocarbons for producing p-xylene and o-xylene
AUTHOR(S): Sulimov, A. D.; Bychkova, D. M.; Zhokhovskaya, T. V.; Kozhina, I. N.
CORPORATE SOURCE: USSR
SOURCE: Trudy - Vsesoyuznyi Nauchno-Issledovatel'skii Institut po Pererabotke Nefti (1970), No. 13, 69-89
CODEN: TIPNA7; ISSN: 0371-795X
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Equilibrium concns. of m-, p-, and o-xylene (I, II, and III) and of PhMe and 1,2,4-C6H3Me3 (IV) disproportionation products from isomerization of each isomer on an aluminosilicate catalyst at 380, 400, 420, and 440° were determined Pressures of 0.6-2.0 atm were optimal when the contact time was adjusted to the pressure chosen. When the catalyst particle size was 3.3 mm, resistance to external diffusion was not observed at Reynolds number >2, and when it was .apprx.0.6 mm the process was kinetically controlled. Selectivity in isomerizing I at an input rate of 1.0 hr-1 at 420° was raised from 71.4 to 85.4% by adding 9% IV to it. First-order rate consts. determined at 380, 400, and 420° yielded activation energies of 15.5, 17.0, and 18.0 kcal/mole for I isomerization to II, III, and II + III, 21.2, 21.7, and 21.5 kcal/mole for II isomerization to I, III, and I + III, and 15.0, 17.0, and 16.0 kcal/mole for III isomerization to I, II, and I + II. Isomerization was not depressed by addition of II, III, or PhEt, but the latter, diluting the product, reduced II crystallization yields and catalytic activity unless its concentration was <10% and the temperature was gradually raised to 480°. In isomerizing com. xylene, concns. of 80.6% II and 72.8% III could be arranged by adjusting the ratios of fresh to recycled C8 and C9 hydrocarbons to 1:7.45 and 1:0.42 and 1:6.06 and 1:0.494, resp. At a 1:3.24 C8 recycle ratio and 400-20°, the product contained 50.0% III and 41.1% II.

L1 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1967:20584 CAPLUS
DOCUMENT NUMBER: 66:20584
TITLE: The dynamic behavior of a fixed-bed catalytic reactor
AUTHOR(S): Leder, Frederic; Butt, John B.
CORPORATE SOURCE: Yale Univ., New Haven, CT, USA
SOURCE: AIChE Journal (1966), 12(6), 1057-63
CODEN: AICEAC; ISSN: 0001-1541
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The dynamic behavior of a fixed-bed catalytic reactor was studied under isothermal conditions by means of frequency response analysis. The investigation was conducted over a range of nonreacting and reacting conditions by using the H-O combination over supported Pt as the reaction system. The kinetics of the surface catalysis of this reaction were investigated sep. and then were incorporated into the analysis of frequency response data under reaction conditions. A method was developed whereby nonlinear chemical reaction effects appearing in the frequency response measurements can be separated from hydrodynamic factors for a plug flow reactor. Use is made of the describing function technique, often

used to approx. nonlinear servomechanism response, to accomplish this. By this method, Peclet nos. measured for the reacting system agree with those measured for the reacting system agree with those measured in the absence of reaction. Based on the semitheoretical value of 2 for the Peclet group at high Reynolds nos., a value of 0.73 cm.2/min. was determined for the effective diffusion coefficient of H at 100° within the porous catalyst particles. Analysis of frequency response data in which this diffusion is not accounted for leads to Peclet nos. which are unreasonable in view of previously reported results.

L1 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1966:469157 CAPLUS
DOCUMENT NUMBER: 65:69157
ORIGINAL REFERENCE NO.: 65:12895d-f
TITLE: Lack of dependence of conversion on flow rate in catalytic studies
AUTHOR(S): Chambers, Robert P.; Boudart, Michel
CORPORATE SOURCE: Univ. of California, Berkeley
SOURCE: Journal of Catalysis (1966), 6(1), 141-5
CODEN: JCTLA5; ISSN: 0021-9517
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The influence of temperature and concentration gradients on the reaction rate over solid catalysts is determined by finding the effect of flow rate on conversion at constant contact time. This diagnostic test may fail because of lack of sensitivity under laboratory conditions. Small values for both d (size of catalyst particle) and v(linear flow velocity) give smaller Reynolds nos. than in large scale operations. Due to the small Re values, (1) the influence of heat and mass transfer may be very great, and (2) the dependence of the coeffs. of heat and mass transfer on flow rate may be so weak that a test of conversion vs. flow rate is quite insensitive. At an Re value of 10 the conversion doesn't appreciably change with flow rate at constant space velocity, even though the influence of heat or mass transfer on the reaction rate may be very severe.

L1 ANSWER 10 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1964:479867 CAPLUS
DOCUMENT NUMBER: 61:79867
ORIGINAL REFERENCE NO.: 61:13923c-d
TITLE: Ion exchange resin catalysis of sucrose inversion in fixed beds
AUTHOR(S): Reed, Eldon W.; Dranoff, Joshua S.
CORPORATE SOURCE: Columbia Univ.
SOURCE: Industrial & Engineering Chemistry Fundamentals (1964), 3(4), 304-7
CODEN: IECFA7; ISSN: 0196-4313
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB The kinetics of continuous sucrose inversion catalyzed by fixed beds of acid from ion exchange resin was studied. A reactor 1 in. in diameter was used and solution flow rate and catalyst particle size were varied to cover a modified Reynolds number range of 0.014 to 4.8. Reaction temperature was varied from 50 to 75°. The reaction was clearly 1st-order over this range and showed an activation energy of 15,950 cal./gram mole. The observed rate of reaction is strongly influenced by diffusion within the resin particles, and the external (film) mass transfer is not significant for the range of conditions explored.

L1 ANSWER 11 OF 11 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1947:12627 CAPLUS
DOCUMENT NUMBER: 41:12627

ORIGINAL REFERENCE NO.: 41:2567d-f
TITLE: Catalytic conversion of hydrocarbon oils
INVENTOR(S): Eastman, du Bois; Richker, Charles
PATENT ASSIGNEE(S): The Texas Co.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2414256		19470114	US 1945-574389	19450124

AB A catalytic cracking process is described in which a "modified" Reynolds number is one controlling factor. Operation is limited to the use of a charge stock having C residue of less than 0.2% and a color less than 200 on the Lovibond 1/2-in. scale and a catalyst consisting of Al_2O_3 about 20, SiO_2 70, and ZrO_2 5%, the operating conditions being about 750°F. and a pressure of about 100 lb. per sq. in. The "modified" Reynolds number requirement is from 100 to 1000. This number, R = DpUP/Z, in which R is the modified Reynolds number; Dp is the diameter of the catalyst particles in ft.; U is the average velocity in ft. per sec. of fluid mixture flowing through the reaction chamber, the reaction chamber being regarded as empty; P is the average d. in lb. per cu. ft. of fluid mixture flowing through the reaction chamber under the operating conditions of temperature and pressure; and Z is the viscosity of the fluid mixture flowing through the reaction chamber in lb. per ft. per sec. under the operating conditions of temperature and pressure.

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